

What is claimed is:

[Claim 1] 1. A proximity sensor control system for selectively and automatically actuating a proximity sensor to detect and warn of a hazardous lateral proximity between a land vehicle in forward motion and an external obstacle so as to improve the safety of lateral merges, wherein the system is adapted for use with a land vehicle equipped with a directional signal light on a lateral side of the land vehicle, a current source, and a directional signal selector switch operable to selectively direct the current source to power the directional signal light, wherein the sensor control system comprises:

a selectively actuatable proximity sensor capable of sensing an external obstacle and sending a responsive signal, in use mountable to said land vehicle in a laterally disposed position suitable for sensing external obstacles on a lateral side of the land vehicle, relative to the direction of forward motion;

a slave switching means for actuating said proximity sensor, connectable in communication with said directional signal selector switch to actuate said proximity sensor in response to the directional signal selector switch actuating said directional signal light; and

a warning means for communicating with said proximity sensor to receive an indication of said responsive signal and issuing a warning that the sensor has sensed an external obstacle.

[Claim 2] 2. The proximity sensor control system according to claim 1, wherein said slave switching means further comprises:

an input for connection with said current source to supply non-intermittent current to the slave switching means; and

an output connected to said proximity sensor, supplying non-intermittent current to the proximity sensor.

[Claim 3] 3. The proximity sensor control system according to claim 1, wherein said proximity sensor comprises:

an array of at least four proximity sensors arranged into at least a right side group and a left side group, wherein said right side group includes at least first and second sensors mountable in positions sensing to the right of said land vehicle, and said left side group includes at least first and second sensors mountable in positions sensing to the left of the land vehicle, wherein at least said first sensor of each group is mountable in a position directed substantially laterally, and at least said second sensor of each group is mountable in a position directed at least partially rearwardly, relative to the direction of forward motion.

[Claim 4] 4. The proximity sensor control system according to claim 3, wherein:

each of said right and left side groups of proximity sensors further comprises at least a respective third sensor, wherein said third sensor is mountable in a position directed at least partially forwardly relative to a direction of motion.

[Claim 5] 5. The proximity sensor control system according to claim 1, further adapted for use with a land vehicle having a source of pulsed current cycles separated by a gap, communicated to said directional signal light for operating the directional signal light in a blinking mode, and having a source of relatively constant current, wherein said slave switching means comprises:

a controller connectable to said source of relatively constant current and to said source of pulsed current cycles and having a timer for measuring a selected period of time;

wherein said controller is structured to trigger operation of said proximity sensor upon receipt of a current pulse from said source of

pulsed current cycles and to supply relatively constant current to the proximity sensor over said selected period measured by said timer;

the timer is structured to restart when the controller receives a current pulse from said source of pulsed current cycles; and

said selected period of time is at least equal to the period of a pulsed current cycle, whereby the timer causes the controller to supply constant current to the proximity sensor through the gap between current pulses.

[Claim 6] 6. A proximity sensor control system in a land vehicle for selecting and actuating a proximity sensor to detect and warn of a hazardous lateral proximity between said land vehicle in forward motion and an external obstacle so as to improve the safety of lateral merges, wherein the land vehicle is equipped with right and left directional signal lights respectively on right and left sides of the land vehicle, a directional signal selector switch selecting a directional signal light on the right or left side for operation, and a current source powering said signal light on the selected side, wherein the sensor control system comprises:

a right side proximity sensor and a left side proximity sensor mounted on the land vehicle;

a slave switching means connected for cooperative operation with said directional signal selector switch for actuating said proximity sensor on the same side selected by the directional signal selector switch; and

a warning means communicating with said actuated proximity sensor for receiving said responsive signal and issuing a warning that the actuated proximity sensor has sensed an external obstacle.

[Claim 7] 7. The proximity sensor control system according to claim 6, wherein said slave switching means further comprises:

an input for connection with said current source supplying non-intermittent current to the slave switching means; and

an output connected to said actuated proximity sensor, supplying non-intermittent current to the actuated proximity sensor.

[Claim 8] 8. The proximity sensor control system according to claim 6, wherein said proximity sensor comprises:

an array of at least four proximity sensors arranged into at least a right side group and a left side group, wherein said right side group includes at least first and second sensors mounted in positions sensing to the right of said land vehicle, and said left side group includes at least first and second sensors mounted in positions sensing to the left of the land vehicle, wherein at least said first sensor of each group is mounted in a position directed substantially laterally and at least said second sensor of each group is mounted in a position directed at least partially rearwardly relative to the direction of forward motion.

[Claim 9] 9. The proximity sensor control system according to claim 8, wherein:

each of said right and left side groups of proximity sensors further comprises at least a respective third sensor, wherein said third sensor is mounted in a position directed at least partially forwardly relative to the direction of motion.

[Claim 10] 10. The proximity sensor control system according to claim 6, further adapted for use in a land vehicle providing a source of pulsed current cycles separated by a gap, communicated to said directional signal light on a selected side for operating the directional signal light in a blinking mode, and having a source of relatively constant current, wherein said slave switching means comprises:

a controller connected to said source of relatively constant current and to said source of pulsed current cycles, and having a timer measuring a selected period of time;

wherein said controller is structured to actuate the right or left side proximity sensor, in accordance with the side selected by said directional signal selector switch, upon receipt of a current pulse from said source of pulsed current cycles and to supply relatively constant current to the selected proximity sensor on said selected side over said selected time period measured by said timer;

the timer is structured to restart when the controller receives a current pulse from said source of pulsed current cycles; and

said selected period of time is sufficient that the controller supplies constant current to the proximity sensor on the selected side through the gap between current pulses.

[Claim 11] 11. The proximity sensor control system according to claim 6, further comprising:

a flasher connected to said current source and to said directional signal selector switch, supplying intermittent current pulses to said selected directional signal light; and

wherein said slave switching means is connected to said current source to supply a non-intermittent current to said actuated proximity sensor.

[Claim 12] 12. A proximity sensor control system in a land vehicle for selecting and actuating a proximity sensor on a selected side of the land vehicle to detect and warn of a hazardous lateral proximity between said land vehicle in forward motion and an external obstacle, so as to improve the safety of lateral merges, wherein the land vehicle is equipped with right and left directional signal lights respectively on right and left sides of the land vehicle, a directional signal selector switch arranged to select the right or left side

directional signal lights, a source of relatively constant current, and a source of intermittent current, comprising:

a right side proximity sensor on the right side of said land vehicle;
a left side proximity sensor on the left side of the land vehicle;

and

wherein said directional signal selector switch is connected to said source of relatively constant current and to said source of intermittent current and is moveable from a neutral position to either a first selection position or a second selection position; and

the directional signal selector switch is connected to said right side proximity sensor such that when the directional signal selector switch is in said first selection position, said intermittent current source is connected to said directional signal lights on the right side of the vehicle, and said relatively constant current source is connected to said proximity sensor on the right side of the vehicle, actuating the right side sensor; and

the directional signal selector switch is connected to said left side proximity sensor such that when the directional signal selector switch is in said second selection position, the intermittent current source is connected to the directional signal lights on the left side of the vehicle, and the relatively constant current source is connected to said proximity sensor on the left side of the vehicle, actuating the left side sensor.